(2) [Reserved]

(d) Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062, telephone 847–272–8800, *www.ul.com.*

(1) UL 2127, Standard for Safety forInert Gas Clean Agent Extinguishing System Units (Revised March 22, 2001), (''UL 2127''), IBR approved for §§ 162.161–5, 162.161–6 and 162.161–7.

(2) UL 2166, Standard for Safety for Halocarbon Clean Agent Extinguishing System Units (Revised March 22, 2001), (''UL 2166''), IBR approved for §§ 162.161–5, 162.161–6 and 162.161–7.

§ 162.161–3 Materials.

(a) All system components must meet the requirements of NFPA 2001 (incorporated by reference, see § 162.161–2) and be made of metal, except for bushings, o-rings, and gaskets. Aluminum or aluminum alloys may not be used.

(b) Metal components must:

(1) Have a solidus melting point of at least 1700 °F;

(2) Be corrosion resistant; and

(3) Be galvanically compatible with each adjoining metal component, or if galvanically incompatible, be separated by a bushing, o-ring, gasket, or similar device.

(c) Each extinguishing agent must be:

(1) Listed as an acceptable total flooding agent for occupied areas on the Environmental Protection Agency's Significant New Alternative Products (SNAP) list, 40 CFR part 82, subpart G, Appendix A; and

(2) Identified as an extinguishing agent in NFPA 2001 (incorporated by reference, see § 162.161–2).

(d) The extinguishing concentration of extinguishing agent required for each system must be determined by the cup burner method, described in NFPA 2001 (incorporated by reference, see § 162.161–2), for the specific fuel requiring the highest extinguishing concentration.

(e) The design concentration of the agent required for each protected space must be calculated using a safety factor of 1.3 times the extinguishing concentration. The quantity must be calculated at the minimum expected ambient temperature using the design concentration based on either:

(1) Gross volume, including the casing, bilge, and free air contained in air receivers; or

(2) Net volume, calculated as shown in NFPA 2001 (incorporated by reference, see § 162.161–2), including the casing, bilge, and free air contained in air receivers, if one of the following is satisfactorily performed:

(i) Full discharge test; or

(ii) Enclosure integrity procedure in accordance with Annex C of NFPA 2001; for discharge or enclosure integrity tests, the minimum concentration hold time must be 15 minutes, and the extinguishing agent concentration at the end of the hold time must be at least 85 percent of the design concentration.

(f) If fuel can drain from the compartment being protected to an adjacent compartment or if the compartments are not entirely separate, the quantity must be sufficient for both compartments.

§ 162.161–4 Construction.

(a) Each pressure vessel must comply with 46 CFR 147.60(a) and (b).

(b) Each system must be capable of operation without an external power source.

(c) Manual actuation for the system must be by mechanical or pneumatic means.

(d) Automatically actuated systems must be released by pneumatic or fusible element detection systems.

(e) Each system installed with the extinguishing agent cylinders stored inside a protected space of 6,000 cubic feet or less must use automatic actuation as the primary means of actuation and have a remote backup manual mechanical actuator.

(f) Each container charged with nitrogen must have a pressure gauge.

§ 162.161–5 Instruction manual for design, installation, operation, and maintenance.

(a) The manufacturer must prepare a system instruction manual for design, installation, operation, and maintenance of the system. The manual must be reviewed and accepted by an independent laboratory listed in 46 CFR

162.161–10 and approved by the Coast Guard under 46 CFR 159.005–13.

(b) The manual must include:

(1) The design information as required in the Design Manual as detailed in UL 2166 (incorporated by reference, see §162.161–2) for halocarbon systems and UL 2127 (incorporated by reference, see §162.161–2) for inert gas systems;

(2) Installation, operation, and maintenance instructions as required in the Installation, Operation, and Maintenance Instruction Manual detailed in UL 2166 for halocarbon systems and UL 2127 for inert gas systems;

(3) Identification of the computer program listed or approved by the independent laboratory for designing the system;

(4) A sample diagram and calculation for a marine system for a large inspected vessel with several spaces to be protected by the same system;

(5) The approval number issued by the Coast Guard for the system under 46 CFR 159.005–13;

(6) A parts list with manufacturer's part numbers and a description of each system component;

(7) An index of chapters; and

(8) Issue and revision dates for each page.

(c) The manufacturer of each system must provide at least one copy of the system manual with each system.

§162.161–6 Tests for approval.

Prior to approval by an independent laboratory each system must:

(a) Satisfy the test method of MSC/Circ. 848 as amended by MSC.1/Circ. 1267 (both incorporated by reference, see §162.161–2), except that:

(1) The Fire Type A (Tell tale) test must be conducted when the charged system cylinders have been conditioned for 24 hours at 32 °F or at the expected service temperature, if lower than 32 °F.

(2) [Reserved]

(b) Satisfy the following test requirements as indicated in UL 2166 (incorporated by reference, see §162.161–2) for halocarbon systems or UL 2127 for inert gas systems (incorporated by reference, see §162.161–2):

(1) Nozzle distribution;

(2) Flow calculation method verification to determine that the manufacturer's calculation method accurately predicts the discharge time, nozzle pressure, and distribution of the extinguishing agent;

(3) Salt spray corrosion resistance for marine-type systems;

(4) Vibration resistance of installed components for marine-type systems; and

(5) Any additional tests contained in UL 2166 for halocarbon systems or UL 2127 for inert gas systems, as required for listing by the independent laboratory.

(c) Equivalent length of installed components must be identified and included in the test report in accordance with UL 2166 (incorporated by reference, see §162.161–2) for halocarbon systems or UL 2127 (incorporated by reference, see §162.161–2) for inert gas systems.

§162.161–7 Inspections at production.

(a) The system must be inspected in accordance with this section and 46 CFR 159.007–1 through 159.007–13, and tested using any additional tests that the Commandant (CG–5214) may deem necessary to maintain control of quality and to ensure compliance with this subpart.

(b) The manufacturer must:

(1) Institute procedures to maintain control over the materials used, over the manufacturing of the systems, and over the finished systems;

(2) Admit the independent laboratory inspector and any representative of the Coast Guard to any place where work is being done on systems and any place where parts or complete systems are stored;

(3) Allow the independent laboratory inspector and any representative of the Coast Guard to take samples of systems for tests prescribed by this subpart; and

(4) Conduct a leakage test on each system cylinder-valve assembly in accordance with subsections 57.1 through 57.4.2 of UL 2166 (incorporated by reference, see §162.161–2) for halocarbon systems or subsection 55.4 of UL 2127 (incorporated by reference, see §162.161–2) for inert gas systems.